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10/644,054	08/20/2003	Michael Joseph Stirniman	STL-2930.10	5143
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EXAMINER				
MACARTHUR, SYLVIA				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/644,054

**Applicant(s)**

STIRNIMAN ET AL.

**Examiner**

Sylvia R. MacArthur

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/27/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 13-23, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) 16-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13-15, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/27/2009 has been entered.

### **Response to Arguments**

2. Applicant's arguments regarding claims 1-8, 13-15, 28, and 29 have been considered but are unpersuasive. Applicant has amended claim 1 to recite that the lubricant vapor source comprises a plurality of threaded holes positioned in a direction parallel to the drilled hole into which the plurality of primary plugs are screwed therein.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-8, 13-15, 28, and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of Stirniman et al (U.S. Patent No. 6,613,151) in view of Liehr et al (US 6,487,986) and Dick et al (US 5,904,958).

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The patent to Stirniman et al teaches a chamber having an interior space, a substrate loader/unloader with at least one disk-shaped substrate comprising a magnetic or magneto optical data/information storage and retrieval medium. The patent further teaches an elongated lubricant vapor source and a substrate transporter/conveyor.

Additionally, the patent claims nozzle slits (openings), but fails to teach the plugs that transport the stream of the vapor source.

The prior art of Liehr et al (US 6,487,986) teaches an elongated vapor source (chamber 1) with plugs (manifold 10/nozzles 11, 11', 11'', ...) that have two openings (an inlet and an outlet) that extend the length of the interior of each plug. The source is closed and provided with heat via glow wires (7, 7', 7'').

The motivation to modify the apparatus of Stirniman et al to utilize the source of Liehr et al et al with its plugs is that the apparatus of Liehr et al et al provides for offering better control of deposition material by arranging the plugs parallel to one another and in a common plane above the substrate and extending transversely across the direction of substrate movement. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed

invention to modify the apparatus of the Stirniman et al with plugs of Liehr et al et al in order the control the distribution of vapor source. The plugs of Liehr et al et al are formed in a linear and rectangular array, see Figures 1 and 2. Note Liehr et al teaches primary plugs 11, 11', 11" ... and secondary plugs 9, 9', 9"....

The teachings of Stirniman et al as modified by Liehr et al are discussed above.

The modification fails to teach an apparatus according to claim 1, wherein said lubricant vapor source (c) comprises at least a plurality of threaded holes into which said plugs are screwed therein.

Dick et al teaches an adjustable nozzle for evaporation of organic monomers. Dick et al further teaches an evaporator 26 (vapor source). The organic monomer enters the evaporation chamber through an inlet 46. The nozzle plate 50 is bolted to the nozzle housing 28 using bolts 58. The motivation to modify the apparatus of Stirniman et al as modified by Liehr et al et al to utilize the evaporator of Dick et al to provide a method of attaching the plugs to the holes. Dick et al shows that it is conventional to screw the plugs into the holes to control the manipulation of the hole openings and thus control the available surface area. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to attach/provide the plugs to the holes by screwing them. Note the term threaded holes is interpreted as a matter of product by process, though Dick does teach a threaded hole.

Note that the prior art of Stirniman et al illustrates in Figure 1 nozzles that would be threaded holes and filled with plugs (bolts) as suggested by modifying with the teachings of Dick et al and Liehr et al. The motivation to design the threaded holes of the lubricant source at the time of the claimed invention to be parallel to the drilled holes of plug is for simplification of the

flow path of the lubricant vapor to the substrate. Thus, it would have been obvious to design the source of the apparatus resulting from the prior art of Stirniman et al and Liehr et al and Dick et al.

Regarding claims 28 and 29: The plugs having a pattern wherein the plugs at the outer edges have a smaller diameter than the plugs adjacent to the middle of the vapor source, the arrangement of the plugs and are interpreted as a matter of optimization without a showing of criticality of this arrangement, shape, or rearrangement of the plugs. The courts have held that without a showing of criticality of the shape, arrangement of a structure, the optimization of such is a prima facie case of obviousness, see *In re Japsike*, *In re Dailey* et al. Thus, it would have been obvious for one ordinary skill in the art at the time of the claimed invention to provide to modify the apparatus of Stirniman et al with the elongated vapor source of Liehr et al.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 13-15, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over [Helling et al (US 5,882,415) in view of Liehr et al (US 6,487,986)] or over [Hedgcoth (US 6,036,824) in view of Liehr et al (US 6,487,986)] and Dick et al (US 5,904,958).

Helling et al teaches an electron beam continuous process vaporization installation for thermally high stressed substrates.

Regarding claims 1 and 13: Helling et al teaches an apparatus for vapor depositing a uniform thickness thin film of a lubricant on at least one surface of a substrate, comprising:

(a) a chamber 6 having an interior space;(b) a substrate loader/unloader (carrier 12) for supplying said interior space with at least one substrate and for withdrawing the substrate from said interior space, said disk-shaped substrate.

Note that the apparatus is what it is and not what it does, the type of substrate used does not structurally limit the apparatus and is not given patentable weight. Furthermore, the inclusion of material or an article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). (d) a substrate transporter/conveyor (rollers 13) for continuously moving at least one past said stream of lubricant vapor from said at least one lubricant vapor source for depositing on at least one surface thereof a uniform thickness thin film of lubricant.

In essence, Helling et al teaches a thin film deposition apparatus by using a lock chamber 1, a heating chamber 3, and a vaporization chamber 6 wherein the vaporization chamber 6 comprises vaporizer crucibles (with vapor sources) and at least one electron gun 10 (electron beam source).

Helling et al teaches a vapor source (vaporizer crucibles 7). The limitation that the vapor source is specifically a *lubricant vapor source* is interpreted as a matter of an intended use. The apparatus of Helling et al comprises a crucible, which can be used to vaporize the intended lubricant material as an apparatus is what it is and not what it does.

Though Helling et al does teach heating chamber 3, Helling et al fails to teach a plurality of primary plugs as recited in the present invention.

The prior art of Liehr et al (US 6,487,986) teaches an elongated vapor source (chamber 1) with plugs (manifold 10/nozzles 11, 11', 11'', ...) that have two openings (an inlet and an outlet) that extend the length of the interior of each plug. The source is closed and provided with heat via glow wires (7, 7', 7'').

The motivation to modify the apparatus of Helling et al to utilize the source of Liehr et al et al with its plugs is that the apparatus of Liehr et al et al provides for offering better control of deposition material by arranging the plugs parallel to one another and in a common plane above the substrate and extending transversely across the direction of substrate movement. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of the Stirniman et al with plugs of Liehr et al et al in order to control the distribution of vapor source. The plugs of Liehr et al et al are formed in a linear and rectangular array, see Figures 1 and 2.

The teachings of Helling et al or Hedgeforth as modified by Liehr et al are discussed above.

Both modifications fail to teach an apparatus according to claim 1, wherein said lubricant vapor source (c) comprises at least a plurality of threaded holes into which said plugs are screwed therein.

Dick et al teaches an adjustable nozzle for evaporation of organic monomers. Dick et al further teaches an evaporator 26 (vapor source). The organic monomer enters the evaporation chamber through an inlet 46. The nozzle plate 50 is bolted to the nozzle housing 28 using bolts



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58. The motivation to modify the apparatus of Helling et al or Hedgeforth as modified by Liehr et al et al to utilize the evaporator of Dick et al to provide a method of attaching the plugs to the holes. Dick et al shows that it is conventional to screw the plugs into the holes to control the manipulation of the hole openings and thus control the available surface area. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to attach/provide the plugs to the holes by screwing them. Note the term threaded holes is interpreted as a matter of product by process, though Dick does teach a threaded hole.

Note that the prior art of Liehr et al teaches plugs/nozzles that would be threaded holes and filled with plugs (bolts allowing for source material to flow therethrough) as suggested by modifying with the teachings of Dick et al and Liehr et al. The motivation to design the threaded holes of the lubricant source at the time of the claimed invention to be parallel to the drilled holes of plug is for simplification of the flow path of the lubricant vapor to the substrate. Thus, it would have been obvious to design the source of the apparatus resulting from the prior art of Stirniman et al and Liehr et al and Dick et al.

Regarding claims 28 and 29: The plugs having a pattern wherein the plugs at the outer edges have a smaller diameter than the plugs adjacent to the middle of the vapor source, the arrangement of the plugs and are interpreted as a matter of optimization without a showing of criticality of this arrangement, shape, or rearrangement of the plugs. The courts have held that without a showing of criticality of the shape, arrangement of a structure, the optimization of such is a prima facie case of obviousness; see *In re Japsike*, *In re Dailey* et al.

Regarding claim 2: The apparatus according to claim 1, wherein said chamber (a) is adapted for maintaining said interior space at a pressure below atmospheric

pressure, see Figures 1 and 2 and the slit airlocks of Liehr et al et al.

Regarding claim 3: The apparatus according to claim 1, wherein said substrate loader/unloader (b) is adapted for providing cooling/condensation (cooled carrier 3 of Liehr et al) of said lubricant vapor for preventing escape of said lubricant vapor from said interior space of said chamber when the substrate is cooled the vapor disposed thereabout is cooled as well.

Regarding claim 4: The apparatus of Helling et al , wherein said substrate loader/unloader (b) is adapted for supplying and withdrawing at least one disc- shaped substrate having a pair of opposed surfaces and said substrate transporter/conveyor (d) is adapted for mounting or gripping at least one disc-shaped substrate, see series of rollers 13 which are arranged on both sides of the carriage col. 4 lines 23-32.

Regarding claim 5: The apparatus according to claim 4, wherein said at least one lubricant vapor source (c) is elongated, with a length greater than an outer diameter of said disc-shaped substrate, see Figs. 1 and 2 of Liehr et al et al.

Regarding claim 6: The apparatus lubricant vapor source (c) according to claim 5, wherein said elongated comprises a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, said closed heated chamber fluidly communicating with at least a plurality of primary plugs for supplying said stream of lubricant vapor, see glow wires of Liehr et al .

Regarding claim 7: The apparatus according to claim 6, wherein said elongated vapor source (c) further comprises a plurality of secondary plugs for increased collimation of said stream of lubricant vapor, see Figs. 1 and 2 of Liehr et al et al (primary plugs 11, 11', 11"...) and secondary

plugs (9, 9', 9"...) as primary plugs are the longer plugs and shorter plugs are secondary plugs or vice versa.

Regarding claim 8: The apparatus according to claim 6, further comprising a spaced apart plurality of said elongated lubricant vapor sources (c) arranged along a path of transport conveyance of said at least one disc-shaped substrate within said interior space of said chamber, see crucibles 7 in Fig.1 of Helling et al.

Regarding claim 15: The apparatus according to claim 8, wherein said chamber (a) is an elongated, rectangular box-shaped chamber having a pair of longitudinally extending front and rear walls; said substrate loader/unloader (b) comprises a substrate load lock chamber connected to said chamber at a first end of said front wall and a substrate exit lock chamber connected to said chamber at a second end of said front wall; each of said spaced-apart plurality of elongated lubricant vapor sources (c) extends transversely across said front wall in the space between said load lock and said exit chambers; and said substrate transporter/conveyor (d) is adapted to move said at least one disc-shaped substrate in a linear path past each of the transversely extending, elongated lubricant vapor sources, see Helling et al, Fig. 1.

Likewise, Hedgcoth teaches a method and apparatus making a magnetic recording disk. Regarding claims 1, 13, 28, and 29: Hedgcoth teaches an apparatus for vapor depositing a uniform thickness thin film of a lubricant on at least one surface of a substrate, comprising: (a) a chamber 14 having an interior space; (b) a substrate loader/unloader (disk carrier 6) for supplying said interior space with at least one substrate and for withdrawing at least one disk-shaped substrate from said interior space, said disk-shaped substrate. (d) a substrate transporter/conveyor (load table 4) for continuously moving at least one disk-shaped substrate

past said stream of lubricant vapor from said at least one lubricant vapor source for depositing on at least one surface thereof a uniform thickness thin film of lubricant.

Though Hedgcoth does teach a disk shaped substrate, the examiner recognizes that the inclusion of material or an article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Furthermore, note that the apparatus is what it is and not what it does, the type of substrate used does not structurally limit the apparatus and is not given patentable weight.

Hedgcoth teaches the production of a thin film using vapor sources 42. Plasma is initiated over the sources to commence the deposition onto the substrates see col. 8 lines 1-44. Though Hedgcoth teaches vapor sources 42, the limitation that the vapor source is specifically a *lubricant vapor source* is interpreted as a matter of an intended use. The apparatus of Hedgcoth comprises a nucleating targets according to col. 4 lines 53-67 which can be used to vaporize the intended lubricant material as an apparatus is what it is and not what it does.

Hedgcoth fails to teach (c) at least a plurality of primary plugs for supplying a stream of vapor.

Regarding claim 2: The apparatus according to claim 1, wherein said chamber (a) is adapted for maintaining said interior space at a pressure below atmospheric pressure, see Figures 1 and 2 and the slit airlocks of Liehr et al et al.

Regarding claim 3: The apparatus according to claim 1, wherein said substrate

loader/unloader (b) is adapted for providing cooling/condensation (cooled carrier 3 of Liehr et al) of said lubricant vapor for preventing escape of said lubricant vapor from said interior space of said chamber when the substrate is cooled the vapor disposed thereabout is cooled as well.

Regarding claim 4: The apparatus of Hedgcoth , wherein said substrate loader/unloader (carrier 6) (b) is adapted for supplying and withdrawing at least one disc-shaped substrate having a pair of opposed surfaces and said substrate transporter/conveyor(load table 4) (d) is adapted for mounting or gripping at least one disc- shaped substrate, see series of rollers which are arranged on both sides of the load table of Fig. 1 of Hedgcoth.

Regarding claim 5: The apparatus according to claim 4, wherein said at least one lubricant vapor source (c) is elongated, with a length greater than an outer diameter of said disc-shaped substrate, see Figs. of Liehr et al. Note that this claim is interpreted as a matter of an intended use in that it refers to the substrate which is not part of the apparatus.

Regarding claim 6: The apparatus lubricant vapor source (c) according to claim 5, wherein said elongated comprises a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, said closed heated chamber fluidly communicating with at least a plurality of primary plugs for supplying said stream of lubricant vapor, see Figs. of Liehr et al et al.

Regarding claim 7: The apparatus according to claim 6, wherein said elongated vapor source (c) further comprises a plurality of secondary plugs for increased collimation of said stream of lubricant vapor, see Figs. of Liehr et al et al as the secondary plugs are the longer plugs and shorter plugs are primary plugs or vice versa.

Regarding claim 8: The apparatus according to claim 6, further comprising a spaced apart plurality of said elongated lubricant vapor sources (c) arranged along a path of transport conveyance of said at least one disc-shaped substrate within said interior space of said chamber, see sources 42 of Helling et al, see also Figures of Liehr et al et al.

Regarding claim 14: The apparatus according to claim 13, wherein said spaced-apart plurality of lubricant vapor sources (c) comprises a second plurality of radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a second one of said pair of opposed surfaces of said disc-shaped substrate, see Fig. 1 of Hedgcoth, sources 42.

Regarding claim 15: The apparatus according to claim 8, wherein said chamber (a) is an elongated, rectangular box-shaped chamber having a pair of longitudinally extending front and rear walls; said substrate loader/unloader (b) comprises a substrate load lock chamber connected to said chamber at a first end of said front wall and a substrate exit lock chamber connected to said chamber at a second end of said front wall; each of said spaced-apart plurality of elongated lubricant vapor sources (c) extends transversely across said front wall in the space between said load lock and said exit chambers; and said substrate transporter/conveyor (d) is adapted to move said at least one disc-shaped substrate in a linear path past each of the transversely extending, elongated lubricant vapor sources, see Hedgcoth, Fig. 1.

The teachings of Helling et al or Hedgcoth et al as modified by Liehr et al et al were discussed above.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-Th during the hours of 8 a.m. and 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 31, 2009

/Sylvia R MacArthur/  
Primary Examiner, Art Unit 1792